

What is claimed is:

1. An opening and closing device comprising:

5 a case in substantially tubular shape including a first end face having
a first through-hole in a center thereof;

 a stator facing the first end face inside the case;

 a rotor accommodated in the case and facing the stator, the rotor being
rotatable with respect to the stator;

10 a spring for pushing the rotor to the stator; and

 a lubricant means placed between the stator and the first end face of
the case.

2. The opening and closing device as defined in Claim 1,

15 wherein the stator has a stator cam projected toward opposite to the
first end face,

 wherein the rotor has a rotor cam projected toward the stator,

 wherein the spring pushes the rotor in a direction in which the rotor
cam is contacted with the stator cam.

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3. The opening and closing device as defined in Claim 1,

 wherein the lubricant means is a slide member interposed between the
stator and the first end face of the case.

25 4. The opening and closing device as defined in Claim 1, further comprising
a cover for covering an opening of a second end face of the case,

 wherein the cover is rotatable with respect to the case,

 wherein the spring is interposed in a contracted manner between the

cover and the rotor.

5. The opening and closing device as defined in Claim 4,

wherein the lubricant means is a slide member interposed between the
5 stator and the first end face of the case.

6. The opening and closing device as defined in Claim 4,

wherein the device includes a second slide member between the spring
and the rotor.

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7. The opening and closing device as defined in Claim 4, further comprising a
third slide member between the spring and the cover.

8. The opening and closing device as defined in Claim 4, further comprising

15 a second slide member between the spring and the rotor, and a third slide
member between the spring and the cover, wherein the lubricant mean is
used as a first slide member.

9. The opening and closing device as defined in Claim 4, further comprising a

20 fix shaft,

wherein one end of the fix shaft is fixed to the stator, and an other end
of the fix shaft is fixed to the cover.

10. The opening and closing device as defined in Claim 1, further comprising

25 a fix shaft, a cover for covering the opening of a second end face of the case,

wherein one end of the fix shaft is fixed to the stator, and an other end
of the fix shaft is fixed to the cover.

11. The opening and closing device as defined in Claim 3,

wherein the slide member is a metal plate having a lubricating surface.

5 12. The opening and closing device as defined in Claim 8,

wherein at least one of the first slide member, the second slide member and the third slide member is a metal plate having a lubricating surface.

13. The opening and closing device as defined in Claim 1,

10 wherein the lubricant means is a lubricant layer formed on a surface of at least one of the first end face and the stator facing the first end face.

14. The opening and closing device as defined in Claim 1,

15 wherein the first end face of the case is formed of a molded member of lubricating material, and the first end face serves as the lubricant means.

15. The opening and closing device as defined in Claim 1,

wherein the stator is formed of a molded member of lubricating material, and the stator serves as the lubricant means.

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